

CHESTER RIVER, MD.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

WITH A LETTER FROM THE CHIEF OF ENGINEERS, REPORTS ON
PRELIMINARY EXAMINATION AND SURVEY OF CHESTER RIVER,
MD., FROM CRUMPTON TO MILLINGTON.

FEBRUARY 26, 1914.—Referred to the Committee on Rivers and Harbors and ordered
to be printed, with illustration.

WAR DEPARTMENT,
Washington, February 25, 1914.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: I have the honor to transmit herewith a letter from the Acting
Chief of Engineers, United States Army, dated 24th instant, together
with copies of reports from Col. Lansing H. Beach, Corps of Engineers,
dated January 23, 1913, and January 3, 1914, with map, on prelimi-
nary examination and survey, respectively, of Chester River, Md.,
from Crumpton to Millington, made by him in compliance with the
provisions of the river and harbor act approved July 25, 1912.

Very respectfully,

LINDLEY M. GARRISON,
Secretary of War.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, February 24, 1914.

From: The Chief of Engineers, United States Army.

To: The Secretary of War.

Subject: Preliminary examination and survey of Chester River, Md.,
from Crumpton to Millington.

1. There are submitted herewith, for transmission to Congress,
reports dated January 23, 1913, and January 3, 1914, with map, by

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Col. Lansing H. Beach, Corps of Engineers, on preliminary examination and survey, respectively, of Chester River, Md., from Crumpton to Millington, authorized by the river and harbor act approved July 25, 1912.

2. Chester River rises in Kent County, Del., and empties into Chesapeake Bay, Md. The river is naturally navigable for vessels of 6 feet draft as far as Crumpton. The existing project for improvement, which has been completed, provides for dredging a channel 6 feet deep and 60 feet wide from Crumpton to Jones Landing. The improvement now desired is stated to be the extension of this channel from Jones Landing to the bridge at Millington, a distance of about 4,000 feet. The district officer states, however, that there is no good location for a terminal in the upper 2,000 feet below the bridge at Millington, and that the prospective commerce will not justify the large cost involved in extending the channel to the bridge. The extension of the channel from Jones Landing to a point about 2,000 feet upstream is estimated to cost \$7,700, which, together with the cost of restoring project depth below Jones Landing, \$4,300, makes the total cost of the work now proposed \$12,000. To this extent the district officer believes the locality worthy of improvement on condition that suitable dumping grounds for the excavated material be provided without expense to the United States, that a suitable wharf be built at the upper end of the improvement, and a road constructed thereto which will be practicable in all conditions of weather, the wharf to be open to all on equal terms; and, further, that if these conditions are not fulfilled within two years after the making of the appropriation by Congress, that the money be returned to the Treasury. The division engineer concurs with the views of the district officer.

3. These reports have been referred, as required by law, to the Board of Engineers for Rivers and Harbors, and attention is invited to its accompanying report, dated January 13, 1914, concurring with the views of the district officer and division engineer.

4. After due consideration of the above-mentioned reports, I concur with the views of the district officer, the division engineer, and the Board of Engineers for Rivers and Harbors, and therefore report that the further improvement of Chester River, Md., is deemed advisable to the extent of restoring project channel dimensions below Jones Landing, at an estimated cost of \$4,300, and extending the channel 6 feet deep at mean low water and 60 feet wide from Jones Landing upstream for a distance of about 2,000 feet, with a suitable turning basin, at an estimated cost of \$7,700 for first construction and \$1,700 annually for maintenance, subject to the conditions of local cooperation recommended by the district officer and specified above. The full amount of the estimate, \$12,000, should be provided in one appropriation.

EDW. BURR,
Colonel, Corps of Engineers,
Acting Chief of Engineers.

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS
ON SURVEY.

[Third indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
January 13, 1914.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY:

1. This is a report of preliminary examination and survey of Chester River, Md., from Crumpton to Millington.

2. Chester River is a tributary of Chesapeake Bay on the eastern shore of Maryland. The existing project for this river provides for a 6-foot low-water channel 60 feet wide from Crumpton to Jones Landing, a distance of about $6\frac{1}{4}$ miles. Millington is about 4,000 feet above Jones Landing. It is a place of considerable importance, while Jones Landing is not a town or village, nor is there even a wharf at that place. Owing to deterioration of the channel, the present head of navigation is at Kirbys Landing, about 10,000 feet below Jones Landing.

3. The improvement desired is an extension of the present project to Millington, this being the center of a considerable community, having a total reported business not expressed in tons but amounting to about \$670,000. The district officer finds that it is impracticable to establish a suitable landing on the river at any point within a distance of about 2,000 feet below the bridge at Millington, a point marked on the map as "W," being about halfway between Jones Landing and Millington. A project for improvement by the provision of a channel 6 feet deep and 60 feet wide is presented in the sum of \$7,700. It has been found that it will require the sum of \$4,300 to restore the existing project below Jones Landing, making a total of \$12,000 now necessary to provide a channel 6 feet deep and 60 feet wide to the uppermost point at which it seems feasible to establish a suitable landing. The district officer is of opinion that improvement to this extent is justifiable, on condition, however, that suitable dumping grounds for the excavated material be furnished without expense to the United States and that a substantial wharf be built at the upper end of the improvement and a public road constructed thereto, the wharf to be open to all parties on equal terms; and further, that if these conditions are not fulfilled within two years after the making of the appropriation by Congress, that the money be returned to the Treasury. In this view the division engineer concurs.

4. It is found from a reference to the report of the Chief of Engineers for the fiscal year ending June 30, 1913, that the total commerce for the river has ranged between about 50,000 and 68,000 tons annually in recent years, having a valuation of as much as \$4,200,000. This commerce consists principally of agricultural products, canned goods, coal, fertilizers, general merchandise, oysters, poultry, and live stock. It appears that it would be of considerable advantage to the community centered about Millington to have the channel extended above the present head of the project, and the district officer states there is reason to believe that such extension would produce sufficient increase in commerce and reduction of freight rates to warrant the expenditure.

5. In view of the foregoing, the board concurs with the district officer and the division engineer and reports that Chester River, Md., is worthy of further improvement by the extension of the present project to a point about 2,000 feet below Millington, the channel to be 6 feet deep at mean low water and 60 feet bottom width, at an estimated cost of \$7,700, together with such work as may be necessary to restore the existing project to full dimensions, estimated to cost \$4,300, making a total of \$12,000, subject, however, to the conditions enumerated by the district officer. The annual maintenance is estimated at \$1,700. The total amount, \$12,000, should be made available in one appropriation.

6. In compliance with law, the board reports that except as contemplated by the above recommendations, there are no questions of terminal facilities, water power, or other subjects so related to the project proposed that they may be coordinated therewith to lessen the cost and compensate the Government for expenditures made in the interests of navigation.

For the board:

FREDERIC V. ABBOT,
Colonel, Corps of Engineers,
Senior Member Present.

PRELIMINARY EXAMINATION OF CHESTER RIVER, MD.

UNITED STATES ENGINEER OFFICE,
Baltimore, Md., January 23, 1913.

From: The District Engineer Officer.

To: The Chief of Engineers, United States Army
(Through the Division Engineer).

Subject: Preliminary examination of Chester River, Md.

1. In compliance with department letter of August 5, 1912, the following report is submitted on the preliminary examination of Chester River, Md., from Crumpton to Millington, as provided for in the river and harbor act of July 25, 1912.

2. Chester River rises in Kent County, Del., and flows in a generally southwesterly direction across the Eastern Shore of Maryland into Chesapeake Bay a little above the thirty-ninth degree of north latitude. It is affected by the tide to Millington, Md., about 40 miles from the Chesapeake Bay, at which point it has a rise and fall of about 2.4 feet. The river is naturally navigable for vessels of 6-foot draft as far as Crumpton, a place of between 1,000 and 2,000 inhabitants, 33 miles above the mouth; from this point to Jones Landing, $6\frac{1}{4}$ miles above, the controlling depth was 3 feet, from which it rapidly shoaled to about 6 inches, this being the mean low water controlling depth from Jones Landing to Millington, about three quarters of a mile farther up.

3. The only project for this part of Chester River, adopted in the river and harbor act of September 19, 1890, is for a 6-foot low-water channel, 60 feet wide, from Crumpton to Jones Landing, at an originally estimated cost of \$12,750, increased in 1896 to \$14,250, and subsequently to \$19,562.50. It has been completed, the total expenditure to date being \$33,606.07, of which \$15,946.59 was for maintenance. Reports of examinations of this locality will be found in Annual Reports of the Chief of Engineers, United States Army, for

1881, page 856, and 1890, page 954. There have been projects on lower parts of the river, on which \$38,041.46 was expended. (See Annual Reports of the Chief of Engineers, United States Army, 1883, p. 133, and 1885, p. 133.)

4. There is at present no navigation above Kirbys Landing, excepting by small gasoline and sailboats, as the river is said to have shoaled considerably between that point and Jones Landing. Between Crumpton and Kirbys Landing are two wharves, which, with that at Kirbys (on which is a warehouse), are privately owned, have no freight-handling devices, and are open to all as public wharves. There are two bridges across this river between the mouth and Millington, the one at Chestertown having a draw opening of 65 feet and that at Crumpton having a clear opening of 36 feet.

5. Parties interested in the further improvement of Chester River desire the present project for a channel 6 feet deep by 60 feet wide to Jones Landing be extended nearly a mile to Millington, and state that such extension would benefit the country within a radius of 6 miles, including the settlements of Millington, Chesterville, Massay, Sudlersville, and Lambson, with a total population of 15,000. All of these settlements, excepting Chesterville, are stations on the Philadelphia, Baltimore & Washington Railroad, Millington, the center of this locality, being an incorporated town. The following is a quotation from a letter from interested parties:

That portion of Chester River which we respectfully ask dredged lies between the first election district of Kent County and the seventh election district of Queen Anne County. The land is very productive for all vegetables, fruit, and grain. The dredging thus far done has caused canners of Baltimore to contract for hundreds of acres of tomatoes. We have a live and aggressive community, and the benefits of completing the channel to Millington proper would be of incalculable advantage to our town and surrounding country.

6. Within this radius there are 1 building and loan association, 1 bank, 1 packing house, 1 cotton mill, 1 flour mill, 1 sawmill, 1 machine shop, 1 lumber and building material supply house, 2 hotels, 3 agricultural implement houses, 13 general merchandise stores, 2 drug stores, 1 grain elevator, 5 canneries, 1 automobile salesroom, 2 creameries, and 4 live-stock dealers.

7. This locality is said to be very productive in lumber, wheat, corn, potatoes, tomatoes, fruits, live stock, and poultry. The commerce of the locality is given as follows:

Incoming:

By water: Interested parties write that "on account of difficulty in getting material hauled from Kirbys Landing, which is the nearest wharf, approximately....."	\$2, 000
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"This would be much increased if channel were open to Millington, as approximately 60 per cent of merchandise is received from Baltimore."

By rail: Coal, lumber, agricultural implements, lime, groceries, phosphate, and general merchandise.....	250, 000
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Total incoming.....	252, 000
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Outgoing:

By water—tomatoes, grain, etc., which first have to be hauled to Kirbys Landing.....	20, 000
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By rail—wheat, corn, lumber, vegetables, fruits, live stock, poultry..	600. 000
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Total outgoing.....	620, 000
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Three gasoline and sail boats have been carrying tomatoes, etc., from points between Kirbys and Crumpton during the summer, and occasionally other boats bring coal and fertilizer, etc. Capacity, about 50 to 75 tons; draft, about 6 feet.

8. It is stated in a letter from interested parties that freight rates by rail in carload lots from Baltimore to Millington are as follows:

Fertilizer (per 2,000 pounds).....	\$1.80
Lumber (per 2,000 pounds).....	1.80
Groceries (per 100 pounds).....	.30
Dry goods (per 100 pounds).....	.30

In view of the fact that rate of grain was reduced from 12 cents per 100 pounds since 1885 to 5 cents per 100 pounds, the effect would be to reduce or keep reduced other rates. Thousands of dollars have been spent at various times in dredging the river from Crumpton to Jones Landing to give a 60-foot channel 6 feet deep at mean low water, but the dredged material has filled in so boats can not get to the landing.

9. They also state that an improvement of the waterway would increase the commerce very much, "as about 60 per cent of goods brought here come from Baltimore, and they would be delivered right in town. The increase in water transportation would amount to many thousand dollars." The effect of such improvement on commerce by rail is stated as follows:

Experience has shown us that such an improvement would mean increased business. While it may temporarily decrease rail shipments and receipts, it would ultimately increase them on account of increased business caused by lower rates, on account of water competition, and the stimulus to increase trucking area. Approximately \$20,000 worth of tomatoes were shipped the past summer between Shahan Wharf and Kirbys by sail and gasoline boats. An increased acreage will be put in for 1913, the value of which will double that of 1912, as we have already been advised of 300 additional acres of tomatoes to be grown in 1913.

The increased acreage mentioned is not theoretical, for various canning factories have made definite propositions to the land owners to take their entire production if it can be delivered at Baltimore at water freight rates. It is stated that if the channel is improved, a public wharf will be constructed by the town of Millington, at the head of the channel.

10. Jones Landing is not a town or village, nor is there even a wharf at the place, which has been selected by the Engineer Department as bearing this name. Gen. William F. Smith, in his report of January 22, 1889, upon the preliminary examination of the stream from Crumpton to Jones Landing (Annual Report of the Chief of Engineers for 1890, p. 954) says:

The accurate location of this landing could not be ascertained, as there is no landing properly speaking, of this name, and opinions seem to differ as to the exact point where a former lime landing of that name existed. It is stated, however, that a certain turn in the river, about three-fourths of a mile below the town of Millington was the objective point in view when the petition for the removal of the obstruction was framed.

The improvement as made to date, therefore, leads to no place at its upper end, and the deepened channel should either be carried to Millington, a place of appreciable size upon a railroad, or terminate at the highest point showing sufficient commerce to justify the expenditure. From the facts and reasons above stated, I am of opinion that Chester River, Md., from Crumpton to Millington, is worthy of improvement to the extent of a survey to determine the cost. If not considered worthy of further improvement, that part of the existing project between Kirbys and Jones Landing should be abandoned.

11. There are no questions of water power, flood control, or land reclamation that can be considered in connection with any improvement of this stream.

12. A sketch map¹ of the locality, taken from a coast survey chart, accompanies this report.

LANSING H. BEACH,
Lieut. Col., Corps of Engineers.

[First indorsement.]

UNITED STATES ENGINEER OFFICE,
New York City, January 24, 1913.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY:

1. Forwarded.

2. As the advisability of the General Government making this improvement is largely dependent upon the cost, I concur with the district officer in recommending a survey to determine such cost.

WM. T. ROSSELL,
Colonel, Corps of Engineers,
Division Engineer.

[Third indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
February 11, 1913.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY:

For reasons stated herein, the board concurs with the district officer and the division engineer in recommending a survey in order to determine the extent and advisability of the improvement.

For the board:

WM. T. ROSSELL,
Colonel, Corps of Engineers,
Senior Member of the Board.

SURVEY OF CHESTER RIVER, MD.

UNITED STATES ENGINEER OFFICE,
Baltimore, Md., January 3, 1914.

From: The District Engineer Officer.

To: The Chief of Engineers, United States Army
(Through the Division Engineer).

Subject: Survey of Chester River, Md., from Crumpton to Millington.

1. In compliance with department letter of February 20, 1913, the following report is submitted on the survey of Chester River, Md., from Crumpton to Millington. The results are given on the accompanying map, which shows the present conditions at the locality.

2. The last dredging under the existing project was in October, 1911, when 11,494 cubic yards of material, scow measurement, were removed from the stream between Crumpton and Spring Landing. Prior to this 14,093 cubic yards, scow measurement, were removed from the channel between Kirbys Landing and a point 2,750 feet below, under contract in December, 1910. Under contract, May to July of the same year, 37,853 cubic yards, scow measure, were dredged between Jones Landing and a point 10,000 feet below.

¹ Not printed.

3. The survey shows that the shoaling to date has been 4,800 cubic yards, scow measurement, between Crumpton and Kirbys Landing, which is at the rate of 2,400 cubic yards yearly; 5,570 cubic yards between Kirbys Landing and a point 500 feet below Jones Landing, or at the rate of 1,856 cubic yards yearly. From this last point to Jones Landing the fill appears to be some 8,990 cubic yards, scow measurement, which would be at the rate of 2,996 cubic yards yearly, making a present total of 19,360 cubic yards of material deposited within two years in the channel of the existing project.

4. To extend the channel 6 feet deep by 60 feet wide from Jones Landing, the end of the present project, to the bridge at Millington would require the removal of about 99,000 cubic yards, scow measurement, of sand and small gravel, which would have to be deposited along the banks of the river, as it is impracticable to handle a tow-boat and scows in a channel of the desired dimensions.

5. Estimates for restoring the project channel and extending it to Millington are as follows:

From Crumpton to Kirbys Landing—

4,800 cubic yards, scow measurement, at 20 cents.....	\$960	
Engineering, superintendence, and contingencies, about 10 per cent.....	100	
		\$1, 060

From Kirbys Landing to a point 500 feet below Jones Landing—

5,600 cubic yards, scow measurement, at 20 cents.....	1, 120	
Engineering, superintendence, and contingencies, about 10 per cent.....	120	
		1, 240

From 500 feet below Jones Landing to Jones Landing—

9,000 cubic yards, scow measurement, at 20 cents.....	1, 800	
Engineering, superintendence, and contingencies, about 10 per cent.....	200	
		2, 000

From Jones Landing to Millington—

99,000 cubic yards, scow measurement, at 20 cents.....	19, 800	
Engineering, superintendence, and contingencies, say.....	2, 200	
		22, 000

Total for the whole work of..... 26, 300

which, if the work were to be done, should be appropriated in one sum.

6. The head of the proposed extension of Chester River channel is at the upper limit of tidal influence where, even now, at low tide a considerable portion of the bottom is exposed and where there is at times a considerable deposit brought down by the river from the region above. It is thought that the shoaling in the proposed extension would be considerably in excess of that at Jones Landing and below, possibly as much as 4,000 cubic yards a year, which would require an estimated annual appropriation for maintenance for the extension as follows:

4,000 cubic yards dredging, at 20 cents.....	\$800	
Engineering, superintendence, and contingencies, about 10 per cent..	100	
		\$900

The shoaling in the existing project has lately been at the rate of 7,250 cubic yards per annum. It is probable that if the extension were made, this would be reduced to 6,000 cubic yards, which would require an estimated annual expenditure for maintenance of—

6,000 cubic yards dredging, at 20 cents.....	\$1, 200	
Engineering, superintendence, and contingencies, about 10 per cent.....	100	
		1, 300
		2, 200

Estimates for widening existing project to 100 feet and dredging a channel 100 feet wide and 6 feet deep to Millington:

From Crumpton to Kirbys Landing—

48,000 cubic yards, scow measurement, at 20 cents.....	\$9, 600
Engineering, superintendence, and contingencies, 10 per cent.	960
	<u>\$10. 560</u>

From Kirbys Landing to 500 feet below Jones Landing—

60,000 cubic yards, scow measurement, at 20 cents.....	12, 000
Engineering, superintendence, and contingencies, 10 per cent.	1, 200
	<u>13, 200</u>

From 500 feet below Jones Landing to Jones Landing—

16,800 cubic yards, scow measurement, at 20 cents.....	3, 360
Engineering, superintendence, and contingencies, 10 per cent.	336
	<u>3, 696</u>

From Jones Landing to Millington—

140,000 cubic yards, scow measurement, at 20 cents.....	28, 000
Engineering, superintendence, and contingencies, 10 per cent.	2, 800
	<u>30, 800</u>
	<u>58, 256</u>

Which should be appropriated in one sum if the work is authorized. The filling in this channel would probably be the same as in the narrower channel, and the cost of maintenance would be the same as above estimated, that is, \$2,200 yearly.

7. It is believed by the people of the locality that if water connection were brought closer to Millington, there would be quite a trade developed in coal and building materials, for which Millington would serve as a distributing point, and in the canning products. The present termination of the project at Jones Landing leaves the improvement somewhat "in the air," and the distance from Millington is rather long for a wagon haul of the amount of business which would probably follow the waterway.

8. As can be seen from the map, Jones Landing is about 4,000 feet below what may be termed the business center of Millington, both by wagon road and by the river. The right bank of the stream for half the distance below the bridge at Millington is comparatively abrupt, and is occupied by dwellings whose back yards extend to the water's edge; the left bank is low and flat, and subject to overflow in extreme freshets, so that there is no very good location for a proper terminal in the first 2,000 feet below the bridge. It is doubtful if the improvement can be brought much closer than a point, about halfway between Jones Landing and the bridge, marked with a large "W" upon the map. The prospective commerce certainly will not justify the cost involved in extending either a 100-foot channel or a 60-foot channel to the bridge.

9. The extension of channel from Jones Landing to this midway point, about 2,000 feet upstream, would cost as follows:

For a channel 6 feet by 60 feet from Jones Landing to the island above, with a turning basin:

35,000 cubic yards, scow measurement, dredging, at 20 cents.....	\$7, 000
Engineering, superintendence, and contingencies, 10 per cent.....	700
	<u>7, 700</u>

For a channel 6 feet by 100 feet at the same locality:

60,000 cubic yards, scow measurement, dredging, at 20 cents.....	12, 000
Engineering, superintendence, and contingencies, 10 per cent.....	1, 200
	<u>13, 200</u>

The excavation should be continued for perhaps 100 feet above the wharf to form a silt basin which will collect the material washed down from the upper stream, and thus prevent too rapid a deterioration of the channel. The estimate has been made sufficiently large to cover this work. The cost of this extension for a 60-foot channel is not excessive, and there is reason to believe that it will produce sufficient increase in commerce and reduction of freight rates to warrant the expenditure.

10. It is accordingly recommended that appropriation be made of \$7,700 for this work, together with the amount of \$4,300 necessary to restore the channel below Jones Landing, making a total of \$12,000, which should be provided in one appropriation. In order to prevent deterioration of the channel, the material removed should be deposited on shore by means of a suction dredge, which is the only type of machine which can place the material sufficiently far from the channel to prevent its return, at least in part. It is therefore further recommended that the work be made conditional upon suitable dumping grounds for the excavated material being provided without expense to the United States, and that a substantial wharf be built at the upper end of the improvement and a road constructed thereto which will be practicable in all conditions of weather, the wharf to be open to all parties on equal terms. Further, that if these conditions are not fulfilled within two years after the making of the appropriation by Congress that the money be returned to the Treasury.

11. There are no questions of water power, land reclamation, or kindred subjects that could be considered in connection with an improvement of Chester River.

LANSING H. BEACH,
Colonel, Corps of Engineers.

[First indorsement.]

OFFICE OF DIVISION ENGINEER,
EASTERN DIVISION,
New York City, January 5, 1914.

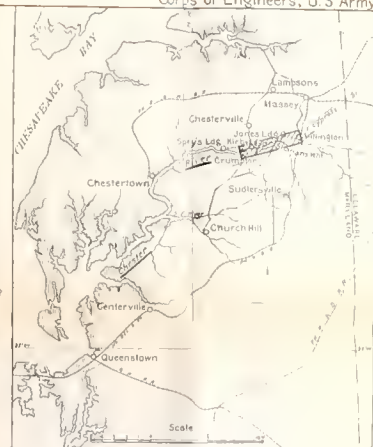
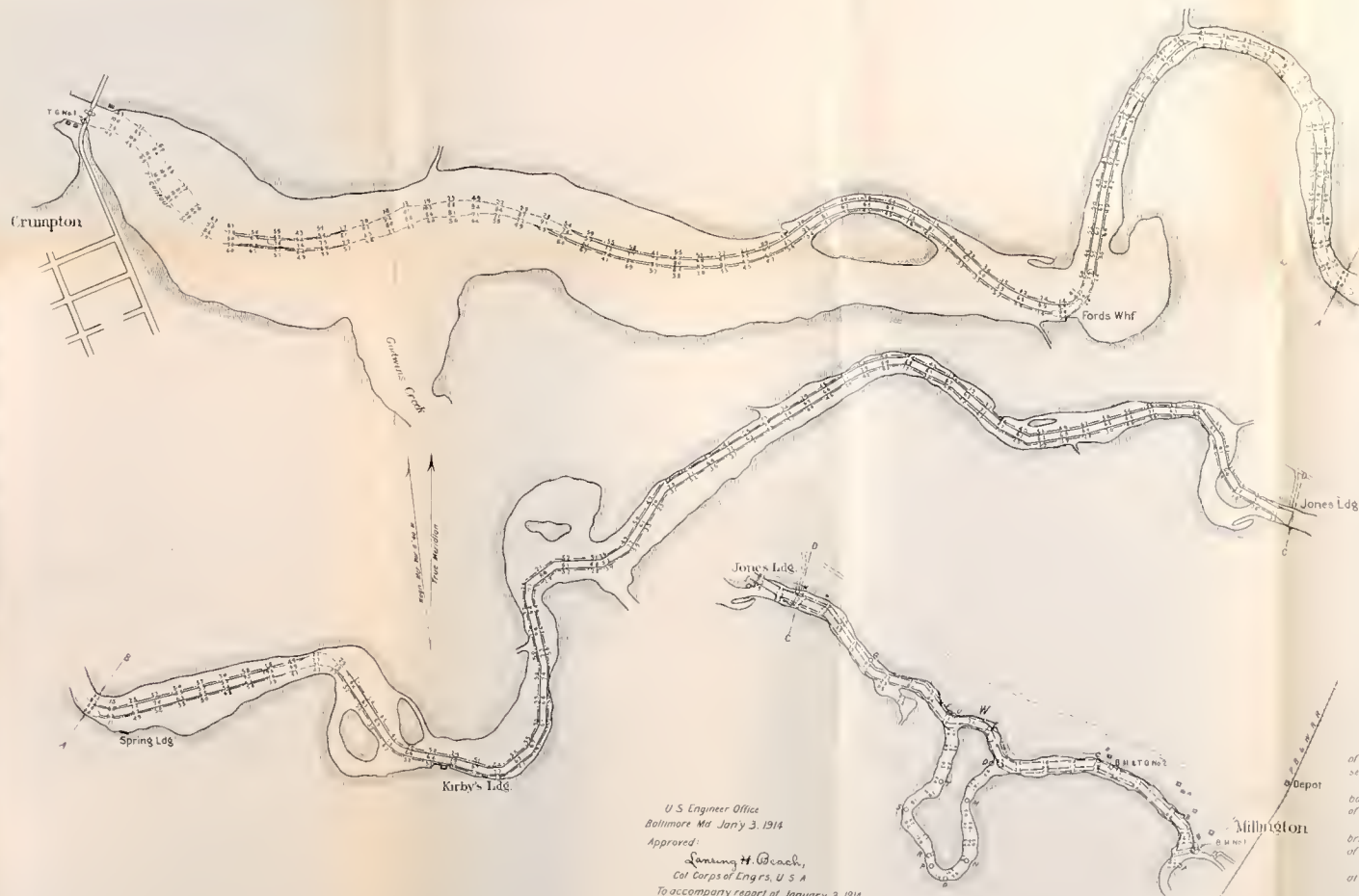
To the Chief of Engineers:

Concurring in the views and recommendations of the district officer.

W. M. BLACK,
Colonel, Corps of Engineers.

[For report of the Board of Engineers for Rivers and Harbors on survey, see p. 3.]





CHESTER RIVER, MD CRUMPTON TO MILLINGTON

PREPARED UNDER THE DIRECTION OF
LANSING H. BEACH
COL. CORPS OF ENGINEERS, U. S. A.

John S. Doyle, Asst. Engr.

Scale 1:40,000

Surveyed by J. Shlessinger, May 1913
Drawn by W. A. Wansleben

Legend

U. S. Engr. tide gauge No. 1 is a plain staff fixed to a pile at the S. W. corner of the bridge across the Chester River at Crumpton, Md. The zero of the gauge is set at mean low water.

U. S. Engr. tide gauge No. 2 is a plain staff fixed to a framing tree on the north bank of Chester River about 1200 ft. below the bridge at Millington, Md. The zero of the gauge is set at 1 m. Mean range is 2.4 ft.

Bench Mark No. 1 is the top of the cement coping of the N. E. railroad bridge across Chester River at Millington, Md. It is 1 foot from the west end of the railing. Elevation 12.6' above m. l. w.

Bench Mark No. 2 is the top of a large spike driven into the framing tree at the gauge No. 2. It is 2.9 ft. above m. l. w.

U. S. Engr. Stations are shown thus: and are nails in 7" x 2" stakes driven nearly flush with the ground.

Existing Channel lines are shown thus: Proposed extension of channel 60 ft. wide shown thus: Proposed channel 100 ft. wide shown thus:

U. S. Engineer Office
Baltimore, Md. Jan'y 3, 1914
Approved:
Lansing H. Beach,
Col. Corps of Engrs., U. S. A.
To accompany report of January 3, 1914
to the Chief of Engineers

